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(54) Title: SIR2 REGULATION

(57) Abstract: Compounds are disclosed which inhibit SIR2 base exchange more than deacetylation, thus enhancing SIR2 deacetylation activity. Methods of using the compounds for enhancing SIR2 deacetylation activity and increasing longevity of an organism are also disclosed. Methods for screening for compounds that enhance SIR2 deacetylation activity and increase longevity of an organism are additionally disclosed.